

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 01 March 2001 (01.03.01)	
International application No. PCT/US00/00981	Applicant's or agent's file reference GJH-0002
International filing date (day/month/year) 14 January 2000 (14.01.00)	Priority date (day/month/year) 15 January 1999 (15.01.99)
Applicant RILEY, Kenneth, Lloyd et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
 14 August 2000 (14.08.00)

☐ in a notice effecting later election filed with the International Bureau on:  
 \_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Maria Kirchner

Telephone No.: (41-22) 338.83.38

# INTERNATIONAL SEARCH REPORT

Int. Application No.  
PCT/US00/00981

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C10G 45/04, 45/60, 29/04, 11/00, 11/02, 11/04; B01J 23/00

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 208/113, 121, 123, 124, 136, 137, 216R, 217, 295; 502/313, 315, 321

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST

search terms: hydrodesulfurization, hydrodenitrogenation, cobalt, nickel, molybdenum, tungsten

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3,925,197 A (VAN KLINKEN et al) 09 December 1975, col. 3, line 67 to col. 10, line 55.	1-7
A	US 3,861,005 A (STEINMETZ et al) 21 January 1975, col. 2, line 9 to col. 19, line 20.	1-7
A	US 3,850,746 A (ROBSON) 26 November 1974, col. 1, line 12 to col. 36, line 64.	1-7
Y	US 4,014,925 A (FERLAZZO et al) 29 March 1977, col. 2, lines 10-24.	2-7
Y	US 4,808,563 A (VELENYI) 28 February 1989, col. 3, line 35 to col. 6, line 20.	2-7

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*B* earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z*	document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means		
*P* document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search  
09 MARCH 2000

Date of mailing of the international search report  
11 APR 2000

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231  
Facsimile No. (703) 305-3230

Authorized officer *Jim Pate Jr*  
MARK BELL  
Telephone No. (703) 308-0661

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/00981

## A. CLASSIFICATION OF SUBJECT MATTER:

US CL :

208/113, 121, 123, 124, 136, 137, 216R, 217, 295; 502/313, 315, 321

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference GJH-0002	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/00981	International filing date (day/month/year) 14 JANUARY 2000	Priority date (day/month/year) 15 JANUARY 1999
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant <b>EXXONMOBIL RESEARCH AND ENGINEERING COMPANY</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

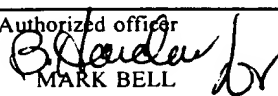
2. This REPORT consists of a total of 4 sheets.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  14 AUGUST 2000	Date of completion of this report  08 FEBRUARY 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer  MARK BELL
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0661

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/00981

**I. Basis of the report****1. With regard to the elements of the international application:\***☒ the international application as originally filed☒ the description:

pages 1-40 , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the claims:

pages 43-44 , as originally filed  
pages NONE , as amended (together with any statement) under Article 19  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the drawings:

pages 1-2 , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the sequence listing part of the description:

pages NONE , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in printed form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☒ The amendments have resulted in the cancellation of:**

- ☒ the description, pages 41, 42  
☒ the claims, Nos. NONE  
☒ the drawings, sheets/fig NONE

**5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\*Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/00981

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. statement**

Novelty (N)	Claims <u>1-24</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-24</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-24</u>	YES
	Claims <u>NONE</u>	NO

**2. citations and explanations (Rule 70.7)**

Claims 1-24 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the claimed hydroprocessing process wherein a feedstream is reacted in the presence of a catalyst comprising a bulk multimetallic catalyst represented by the formula recited in the claims.

The art of record teaches various processes employing catalysts containing Group VIII and Group VI metals (e.g., Co, Ni, Mo, W), but not in the form of the claimed multimetallic catalyst.

The claims have Novelty, Inventive Step, and Industrial Applicability in the fields of catalysis and hydrocarbon processing.

----- NEW CITATIONS -----

NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/00981

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

**CLASSIFICATION:**

The International Patent Classification (IPC) and/or the National classification are as listed below:

IPC(7): C10G 45/04, 45/60, 29/04, 11/00, 11/02, 11/04; B01J 23/00 and US Cl.: 208/113, 121, 123, 124, 136, 137, 216R, 217, 295; 502/313, 315, 321

09/889981  
Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference LEA33163-WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/00256	International filing date (day/month/year) 14 January 2000 (14.01.00)	Priority date (day/month/year) 27 January 1999 (27.01.99)
International Patent Classification (IPC) or national classification and IPC H05K 3/00		
Applicant BAYER AKTIENGESELLSCHAFT		RECEIVED JAN 15 2002 TC 1700

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

RECEIVED  
JAN 15 2002  
TC 1700

Date of submission of the demand 21 July 2000 (21.07.00)	Date of completion of this report 25 October 2000 (25.10.2000)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP00/00256

## I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☐ the international application as originally filed.

☒ the description, pages 1-12, as originally filed,  
pages \_\_\_\_\_, filed with the demand,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☒ the claims, Nos. 1-5, as originally filed,  
Nos. \_\_\_\_\_, as amended under Article 19,  
Nos. \_\_\_\_\_, filed with the demand,  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☐ the drawings, sheets/fig \_\_\_\_\_, as originally filed,  
sheets/fig \_\_\_\_\_, filed with the demand,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/fig \_\_\_\_\_

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/EP 00/00256

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-5	YES
	Claims		NO
Inventive step (IS)	Claims	1-5	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-5	YES
	Claims		NO

### 2. Citations and explanations

1. The method as per Claim 1 meets the requirements of PCT Article 33(2)-(4) for the following reasons.

Document EP-A-0 707 440 (D1) should be considered the closest prior art and discloses (see e.g. page 3, lines 18-53; and page 6, lines 29 and 30) a method including steps (a)-(c) and (e)-(h) of the claimed method. D1 also describes an embodiment of the method in which 25-50% phosphoric acid can be used for the acid treatment (page 6, lines 29 and 30), and in which the treatment with a thiophene microemulsion and the subsequent acid treatment are combined into a single step (page 3, lines 57 and 58).

Such a combined treatment step is also possible in the method as per Claim 1, namely in the embodiment described on page 7, lines 22-27, in which a treatment is applied with an aqueous solution containing phosphoric acid and a thiophene microemulsion.

- 1.1 Consequently, the difference between the claimed method and the method known from D1 is that the

treatment with phosphoric acid and a microemulsion is followed by a treatment with sulphuric acid.

A distinctly finer copper deposition can be achieved during the subsequent galvanisation step with substrates subjected to such a preliminary treatment, yielding high-quality throughplatings.

The problem can therefore be considered to be that of improving the method known from D1.

- 1.2 The solution is not obvious, since the cited prior art does not contain any indication that such an improvement could be achieved by combining steps (d), (e) and (f). The method as per Claim 1 therefore involves an inventive step.
2. Dependent Claims 2-5 concern particular embodiments of the method as per Claim 1 and therefore likewise involve an inventive step. The requirements of PCT Article 33(2)-(4) are therefore likewise met.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 00/00256

## VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

1. The requirements of PCT Rule 5.1(a)(ii) are not met because, although the description cites document D1, it does not indicate the relevant prior art disclosed therein in a manner that would be useful for understanding the invention.
2. Page 7, lines 19-30, of the description, are not consistent with Claim 1 with regard to reference signs (c) to (g) to indicate the corresponding method steps. The requirements of PCT Rule 5.1(a)(iii) are therefore not met.